



Net Zero Review: Call for evidence

Response from UCL Institute for Sustainable Resources

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The UCL Institute for Sustainable Resources delivers world-leading research, teaching, and enterprise in the sustainable use of global resources.

We welcome the opportunity to present evidence to this review. We have chosen to answer the first section on Overarching questions.

We would be delighted to discuss this consultation, or any of our other work. Please contact Katherine.page@ucl.ac.uk

Overarching questions

1. How does net zero enable us to meet our economic growth target of 2.5% a year?

While we cannot comment on role of net zero in relation to any specific growth target (or the feasibility of any particular economic growth target), we can make three broad observations regarding net zero and economic growth.

First, climate change itself imposes damages on UK welfare and the UK economy. This is illustrated by the floods and the extreme summer heat this year leading to excess deaths and loss of productivity. Damages are driven by global emissions, but action by the UK is crucial in the global context for multiple reasons. These include disproportionate historical emissions; the world's first binding Climate Change Act and a key precedent for net zero emissions targets that have spread more widely; co-chair role of the IPCC Sixth



price last winter. Discussion, data and projections are set out in our Working Paper series on *Navigating the*
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There are many areas which are 'win win' i.e. good for emissions reductions and growth. These include large-scale programmes to upgrade homes, which could have huge economic benefits for supply chains and households themselves (via lower energy bills); ensuring we meet targets for phasing out fossil (ICE) vehicles, which would benefit substantial UK-based supply chain for electric vehicles and charging infrastructure; and future proofing our remaining industrial clusters by implementing plans for decarbonisation.

A more distributed, flexible, and diversified energy supply including both centralised generation and locally distributed renewables will also help us to quickly recover in the face of shocks and disruptions to society (climate related events as well as global conflicts). By accelerating technological development, diversifying investment including towards renewables, and skills re-training, the UK's security and resilience can be strengthened (see Q6 below). As the BEIS public attitude tracker shows there is very significant concern by the UK public over climate change,⁸. Leaders and organisations supporting transitions that benefit both industries and communities are also likely to enjoy a greater mandate from the public.

4. What more could government do to support businesses, consumers and other actors to



is needed: e.g. charging infrastructure for EVs; power transmission and distribution for both centralised and distributed renewables; electricity storage, through batteries and hydrogen, the latter making use of renewable electricity at times when it is surplus to demand.

6. How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?

Energy security is higher on the agenda now than it has been for several decades. Russia's invasion of Ukraine and the high oil and gas prices have brought this issue back on to the agenda. Whilst the UK is less dependent on Russia than many other European countries – particularly for gas – it is clear that we are not



Therefore, it will be essential for the UK to manage the security and resilience of natural gas use during the transition to net-zero. That means doing everything we can to reduce gas demand, particularly by revitalising household energy efficiency programmes, and replacing gas boilers with heat pumps where this is feasible. It also means considering whether the UK might need more gas storage and ensuring that gas is sourced from a diverse range of sources – and via a diverse range of supply routes.

Although the low-carbon transition now largely contributes to energy security and affordability, the transition must also be managed to minimise new risks. An electricity system based on intermittent renewables requires a high degree of geographic distribution, significant increases in transmission infrastructure, and substantial deployment of energy storage (i.e. batteries and other longer duration storage) and new interconnector capacity. This transformation will require new market, legislative and policy structures that facilitate, drive and co-ordinate this transformation, and which connect supply to more actively engaged consumers, as end-use sectors become increasingly electrified.

Transitioning to this more complex system may create new risks to energy security and affordability both foreseen and unforeseen. Key low-carbon technologies also require greater use of critical minerals such as lithium, cobalt, nickel and rare earth elements, which may create new dependencies on regions of geopolitical instability, and dependencies on those with fossil fuel reserves decline. That means paying

